

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application.

COMPLETE LISTING OF THE CLAIMS:

Sub 17

Claims 1-15 : (Canceled)

Claim 16 : (New) A frequency changer of one of a zero intermediate frequency type and a near-zero intermediate frequency type, comprising: an oscillator arrangement; a first multiplier having a first input for receiving an input signal in a first frequency band, and a second input connected to said oscillator arrangement; and said oscillator arrangement comprising a first oscillator for supplying a first signal in said first frequency band to said second input of said first multiplier, a second oscillator for producing a second signal in a second frequency band outside said first frequency band, and a reference oscillator, said first oscillator being phase-locked to said second oscillator, and said second oscillator being phase-locked to said reference oscillator.

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Claim 17 : (New) The frequency changer as claimed in claim 16, in which said second frequency band is lower than said first frequency band.

Claim 18 : (New) The frequency changer as claimed in claim 16, in which said first frequency band is within 950 to 2150 MHz.

Claim 19 : (New) The frequency changer as claimed in claim 16, in which said second frequency band is within a UHF band.

Claim 20 : (New) The frequency changer as claimed in claim 19, in which said second frequency band is within 400 to 600 MHz.

Claim 21 : (New) The frequency changer as claimed in claim 16, comprising a low pass filter, said first multiplier having an output for supplying an output signal to said low pass filter.

Claim 22 : (New) The frequency changer as claimed in claim 21, in which said low pass filter has a cut-off frequency of between 5 MHz and 40 MHz.

Claim 23 : (New) The frequency changer as claimed in claim 16, comprising a second multiplier having a first input for receiving said input signal, and a second input connected to said oscillator arrangement for receiving a quadrature signal which is in quadrature with said first signal.

Claim 24 : (New) The frequency changer as claimed in claim 23, comprising a phase adjusting network, to which said first oscillator is connected, for forming said first signal and said quadrature signal.

Claim 25 : (New) The frequency changer as claimed in claim 23, in which said first oscillator comprises a ring oscillator having first and second outputs for supplying said first signal and said quadrature signal.

Claim 26 : (New) The frequency changer as claimed in claim 16, in which said first oscillator has a control input, and said first and second oscillators form part of a first phase-locked loop comprising: a first programmable divider; a first comparator having an output, a first input connected via said first programmable divider to said first oscillator, and a second input connected to said second oscillator; and a first control loop connected between said output of said first comparator and said control input of said first oscillator.

Claim 27 : (New) The frequency changer as claimed in claim 26, in which said first programmable divider has selectable divisors of two, three and four.

Claim 28 : (New) The frequency changer as claimed in claim 16, in which said second oscillator has a control input, and said second and reference oscillators form part of a second phase-locked loop comprising: a second programmable divider; a third programmable divider; a second comparator having an output, a first input connected via said second programmable divider to said second oscillator, and a second input connected via said third programmable divider to said reference oscillator; and a second control loop connected between said output of said second comparator and said control input of said second oscillator.

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Claim 29 : (New) The frequency changer as claimed in claim 16, in which said first multiplier and said oscillator arrangement are formed in a monolithic integrated circuit.

Claim 30 : (New) A digital tuner frequency changer of one of a zero intermediate frequency type and a near-zero intermediate frequency type, comprising: an oscillator arrangement; a first multiplier having a first input for receiving an input signal in a first frequency band, and a second input connected to said oscillator arrangement; and said oscillator arrangement comprising a first oscillator for supplying a first signal in said first frequency band to said second input of said first multiplier, a second oscillator for producing a second signal in a second frequency band outside said first frequency band, and a reference oscillator, said first oscillator being phase-locked to said second oscillator, and said second oscillator being phase-locked to said reference oscillator.